

Tech Note 821 Troubleshooting Wonderware Alarm Provider Query Issues

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Introduction

This *Tech Note* does the following:

- Explains how an alarm query works.
- Helps identify the root cause of a failed alarm query.
- Provides information about the differences between Windows 2003 and Windows Vista, Windows 7, Windows 2008 in the context of alarm query syntax and alarm provider working mechanisms.
- Limitations for querying Console session InTouch/QI Analyst alarms on Windows Vista, 7 and 2008.

Application Versions

- All supported Application Server and InTouch® Versions

Keys For An Alarm Query To Be Successful

InTouch, Application Server, and QI Analyst are three Wonderware applications that provide alarms, and collectively are known as Alarm Providers. The alarm query syntax from the alarm client varies depending on the alarm providers, locations of the alarm providers, and the Operating Systems on which the alarm providers are running. Alarm Clients/Alarm Consumers include the **AlarmViewer** control, **AlarmDbLogger**, and the **Wonderware SuiteVoyager Alarm Consumer** service.

To determine the success or failure of an alarm query in Runtime, watch the query result displayed on the bottom-right corner of the Alarm Client control. For example, an AlarmViewer ActiveX Control (Figures 1 and 2 below).

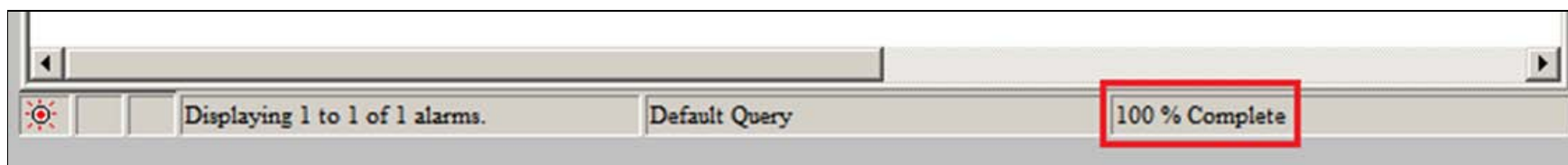


FIGURE 1: A SUCCESSFUL ALARM QUERY RESULT *

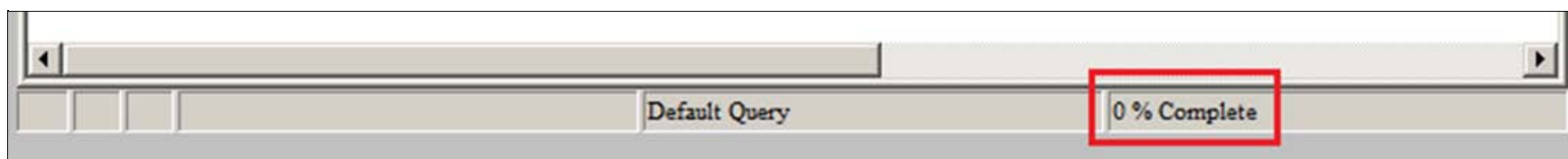


FIGURE 2: A FAILED ALARM QUERY RESULT *

* The percentage is a ratio of the number of *successful* queries over the *total* number of queries. For a single query, the percentage is either 0% for a failed query or 100% for a successful query.

Besides error-free syntax, the keys for a 100% result for an alarm query include:

- The Node Name must be resolved to a correct IP for the target OS Session.

- AlarmMgr must be started and successfully registered with the *SuiteLink Name Service (SLSSVC)* for that (OS) Session.
- The alarm provider application must be started and running.

Note: *SuiteLink Name Service* is an application component of **Wonderware SuiteLink** service. It registers and provides SuiteLink communication connection information from/to both the servers and clients.

For Windows Vista, Windows 7 and Windows Server 2008

When both Application Server and InTouch/QI Analyst are providing alarms, and when InTouch/QI Analyst are also running on the Console session,

- Application Server or any other Alarm Provider or Alarm Consumer running as a service must be started *prior to* InTouch/QI Analyst in order for Application Server to work as an Alarm Provider. For example, Alarm Db Logger (running as a service) or **Wonderware SuiteVoyager Alarm Consumer** service can run as Alarm Consumers on the same computer.

Alarm Provider Computer Host Name (aka Node Name)

When used in an alarm query, **Alarm Provider Computer Host Name** or **Node Name** must be first resolved to an IP address for the target OS session where the alarm provider is running. Common mistakes about Node Name include:

- Wrong IP resolution. This could be the result of:
 - The Node Name cannot be mapped to an IP because
 - Either the DNS is not accessible, not working properly or has a corrupted mapping table for a domain network, or
 - The Hosts file is not configured correctly (or at all) for a workgroup network.
 - The Node Name is mapped to an incorrect IP because
 - Either the DNS has a corrupted mapping table for a domain network, or
 - The Hosts file is incorrectly configured, or contains wrong information for a workgroup network.
 - When more than one NICs exist on the alarm provider computer, the Node Name is resolved to an IP that does not match with the NIC for the network between the alarm provider and alarm client.

If a Node Name needs to be mapped to an IP not relevant to Alarm Provider/Client network, an option is to use the NIC's IP directly within the alarm query.

- Wrong Alarm Provider Host Name Syntax.

For Windows 2003 Server

- Without specifying a Node Name in the query syntax, the LOCAL session is always specified for both the Console and Client sessions.
- `\\NodeName\...` always refers to the Console session.
- `\\NodeName:xxx.xxx.xxx.xxx\...` refers to a specific client session represented by the IP. The IP can be obtained by running the **TseGetClientID()** InTouch script function.

For Windows 2008 Server

- Without specifying a Node Name in the query syntax, the LOCAL session is always specified for both the Console and Client sessions.
- `\\NodeName\...` unlike Windows 2003, this syntax always refers to the LOCAL session when the query runs on a Terminal Server. This means that it refers to the Client session when the query runs on a Client session, and to the Console session when the query runs on the Console.

However, it refers to the Console session when the query runs from another standalone computer.

- `\\NodeName:\...` used only on Terminal Services client sessions, refers to the Console session
- `\\NodeName:xxx.xxx.xxx.xxx\...` refers to a specific client session represented by the IP. The IP can be obtained by running **TseGetClientID()** InTouch script function.

AlarmMgr Registration with SuiteLink Name Service (SLSSVC)

AlarmMgr is the Wonderware alarm management application for both the Alarm Providers and the Alarm Clients.

For an alarm query to connect to an alarm provider successfully, the query (through local AlarmMgr), must do the following:

- Resolve to a correct IP for the Alarm Provider Host Name or Node Name, and
- Find the alarm provider **AlarmMgr** by name through *SuiteLink Name Service* for the (OS) session, connects to it when found, and
- Identify if the specified alarm provider application (either Application Server, InTouch or QI Analyst) is running.

Note: AlarmMgr does not use SuiteLink to communicate, it only uses *SuiteLink Name service* to discover an application by the name of **AlarmMgr**. AlarmMgr uses TCP to communicate.

One common error with AlarmMgr is that "AlarmMgr" is not always registered with *SuiteLink Name service*. This condition could be the result of

- *Wonderware SuiteLink* service either not running or not properly running.

To verify, run the following DOS command:

```
SLSPING <NodeName> alarmmgr
```

The message returned from this DOS command (Figure 3 below) indicates that *Wonderware SuiteLink* service is not running or not running properly.

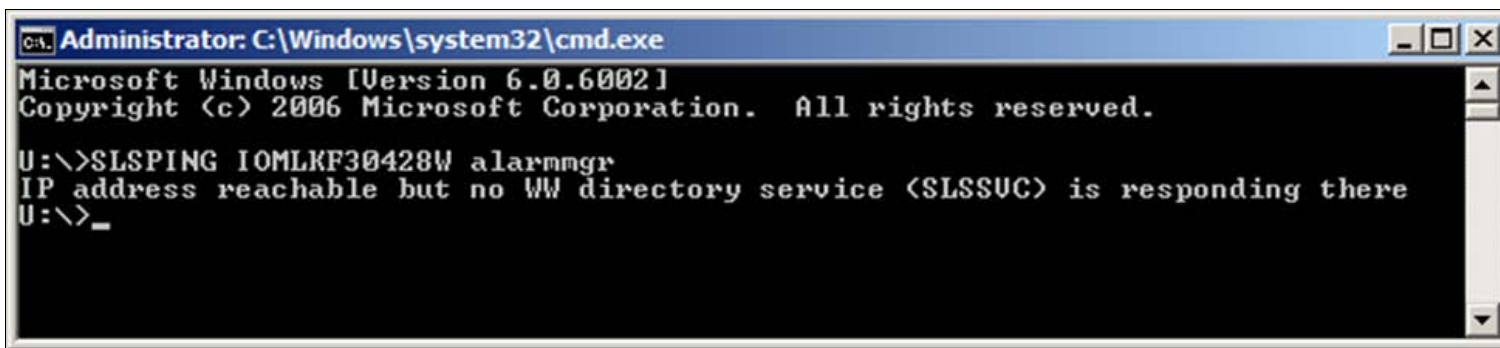


FIGURE 3: SLSPING DOS COMMAND RESULT: WONDERWARE SUITELINK SERVICE <SLSSVC> NOT RESPONDING

The message returned (Figure 4 below) indicates that *Wonderware SuiteLink* service is running properly, but

- **AlarmMgr** is not running, or
- Running but not successfully registered with *SuiteLink Name service*.

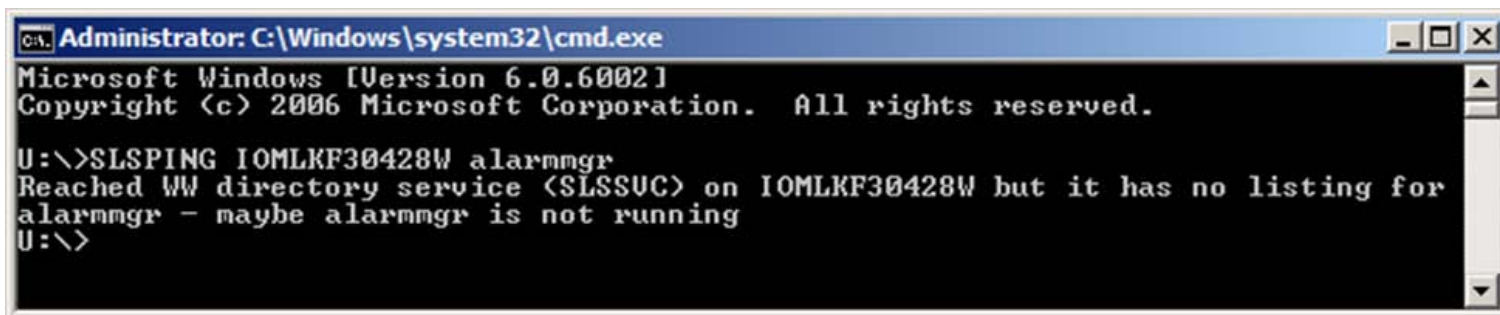


FIGURE 4: SLSPING DOS COMMAND RESULT: WONDERWARE SUITELINK SERVICE <SLSSVC> RUNNING

To verify that AlarmMgr is running, use Windows Task Manager to see if it is listed under the **Processes** tab. If AlarmMgr (with any SessionID) is already running, it is likely that the *Wonderware SuiteLink* service was started *after* AlarmMgr. In other words, when AlarmMgr starts, and *Wonderware SuiteLink* service is not running, AlarmMgr is not registered in the *SuiteLink Name service* list.

When AlarmMgr is started by InTouch or any other applications not running as a service, the startup order should not be an issue: Set the *Wonderware SuiteLink* service for

Automatic startup mode. Doing this ensures that *Wonderware SuiteLink* service will always start before the AlarmMgr.

When AlarmMgr is started by a deployed Platform with an Alarm Primitive (as an Alarm Provider), and if the startup order is an issue, adjust the service startup order list or add *Wonderware SuiteLink* service to the **Dependencies** list of the **Archestra Bootstrap** service using the Registry Editor, to make sure *Wonderware SuiteLink* service is started prior to *Archestra Bootstrap* service. This topic will be covered separately.

The message returned (Figure 5 below) indicates that AlarmMgr is running and successfully registered with *SuiteLink Name* service.

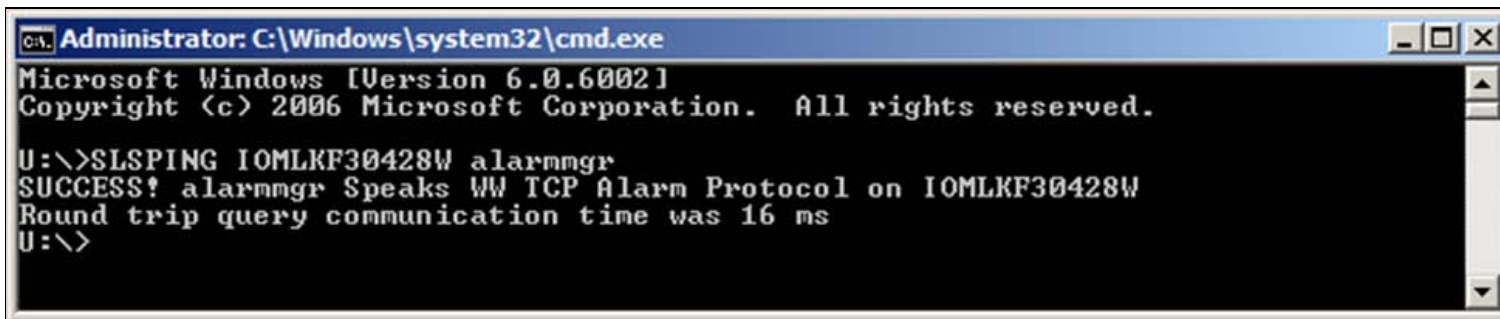


FIGURE 5: SLSPING DOS COMMAND RESULT – ALARMGR REGISTERED SUCCESSFULLY WITH SLSSVC

Alarm Providers Running on Windows 2003, Windows Vista, 7 and 2008

On Windows 2003

- On the Console session, AlarmMgr *always* runs in SessionID **0**. This is true whether AlarmMgr is started by Application Server or by InTouch/QI Analyst or even by any other Alarm Consumers (for example, Alarm Db Logger and **Wonderware SuiteVoyager Alarm Consumer** service). Therefore, the AlarmMgr registered with *SuiteLink Name* service always provides alarms from *both* Application Server and InTouch/QI Analyst running on this Console session.
- On each Terminal Server Client Session, the AlarmMgr runs in a unique SessionID (any number but NOT **0**). The AlarmMgr is registered with the *SuiteLink Name* service at startup, and then provides alarms from InTouch/QI Analyst running on the client session.

On Windows Vista, Windows 7 and Windows 2008

- On the Console session, AlarmMgr runs in SessionID **0** *only* when it is started by a service, such as by Application Server, *Wonderware SuiteVoyager Alarm Consumer* service, or *Alarm Db Logger* when running as a service.

For GUI applications such as InTouch and any other applications not running as a service, the AlarmMgr started by such applications runs in another SessionID (Figure 6 below). Ideally each AlarmMgr should register with the *SuiteLink Name* service with a unique name as the identifier.

However, because both the Alarm Providers share the same name **AlarmMgr**, and the current design allows only one AlarmMgr to be registered with *SuiteLink Name Service* as Alarm Provider for the Console session, the AlarmMgr (SessionID **0** or another SessionID) session that starts **FIRST** registers with the *SuiteLink Name* service as the *Alarm Provider* for the Console session.

This means that

- When enabled as an Alarm Provider, Application Server or any of the other Alarm Providers/Alarm Consumers running as a service (such as Alarm Db Logger when running as a service, or *Wonderware SuiteVoyager Alarm Consumer* service) must be started *before* InTouch/QI Analyst, or any non-service Alarm Provider or Alarm Consumer, if Archestra alarms are to be provided by the AlarmMgr.
- Alarm Clients running on Terminal Server Client Sessions (Windows 2008) or any other standalone node cannot query alarms from InTouch/QI Analyst running on a Console session unless InTouch/QI Analyst is started **FIRST**, before any of the Alarm Providers (such as Application Server when enabled as Alarm Provider) or Alarm Consumers (such as Alarm Db Logger when running as a service, **Wonderware SuiteVoyager Alarm Consumer** service) running as a service.

However,

- When InTouch/QI Analyst, or any non-service Alarm Provider/Alarm Consumer is started **FIRST**, and meanwhile Application Server is enabled as Alarm Provider, Archestra alarms are no longer available to any alarm queries from alarm clients running anywhere.

The alarm query from a non-service alarm client, *in Console session only*, is able to query alarms from InTouch/QI Analyst, except when running **Alarm Db Logger** as a service. This is made possible because of a special code change in the AlarmMgr.exe file. When an alarm query through a non-0 SessionID AlarmMgr runs on Console session, instead of always connecting to the AlarmMgr registered with SuiteLink Name service, the connection is forced to switch to the AlarmMgr (as Alarm Provider) running in its own SessionID.

This is true regardless of whether this AlarmMgr is the one registered with *SuiteLink Name service* or not.

- When Alarm Db Logger is running as a service on the Console session: Because its AlarmMgr is running with SessionID **0**, its alarm query is not able to connect with InTouch/QI Analyst as Alarm Providers running on the Console session. This is true regardless of which is started first.
- Alarm Db Logger running as a service is *only* able to connect to an InTouch/QI Analyst as Alarm Providers when
 - The Alarm Db Logger and the InTouch/QI Analyst are running on two separate nodes, and
 - InTouch/QI Analyst is started **FIRST**, before any other Alarm Providers and Alarm Consumers run as a service on that node.
- On each Terminal Server Client session, an AlarmMgr running in a unique SessionID (any number but **0**) registers with the *SuiteLink Name service* and provides alarms from InTouch/QI Analyst running on that client session.

aaPlatformInfoSvr.exe *32	0	3904	wwAdmin	00	2,016 K
aalUserValidator.exe *32	0	1584	SYSTEM	00	2,316 K
alarmmgr.exe *32	1	2264	chuanh	00	3,332 K
alarmmgr.exe *32	0	4836	wwAdmin	00	3,116 K
AppleMobileDeviceService.exe *32	0	1636	SYSTEM	00	2,732 K
ArchestrA.Visualization.LMXPublisherServic...	0	1152	NETWO...	00	4,412 K

FIGURE 6: TWO ALARMMGRS RUNNING IN SESSIONID 0 AND ANOTHER SESSIONID ON CONSOLE SESSION OF WINDOWS 2008

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